More scenes from Borneo—a bird's nest soup cave, leeches and pitcher plants, ascent of Mount Kinabalu

by Ed Berg

The insectivorous pitcher plant Nepenthes rajah grows only on the slopes of Mt Kinabalu and neighboring Mt Tambuyukon in Borneo. The fluid-filled pitcher has a dark red collar around the throat. A lid arches forward over the throat of the pitcher as an awning to keep out rain. A steep pencil-thin tendril comes off the tip of a leaf above (out of sight) and attaches to the base of the pitcher. The pitcher rests on the ground and is about 8 inches high. Insects are attracted into the pitcher, captured in the sticky fluid, and digested by enzymes. Photo Credit: Kimberly Holmes

I have seen "bird's nest soup" on menus in Chinese restaurants, but I always thought this was some kind of euphemism like "sweet breads" or "mountain oysters" for something totally different from what the name literally describes. I couldn't imagine actually making soup out of bird's nests. But, no, I was wrong; bird's nest soup is the real McCoy.

On my recent trip to Borneo (Peninsula Clarion, Feb 27), I had occasion to visit Gomantong Cave where bird nests have been collected since the 1600s and sold to Chinese traders. Two species of swiftlets inhabit the caves; the white-nest swiftlet and the black-nest swiftlet. Swiftlet nests are held together with ribbons of sticky saliva; the highly prized white nests are almost entirely saliva, which dries to a translucent white color. The black nests have feathers cemented together with saliva, and fetch a lower price because the feathers must be removed before the soup is prepared.

Bird's nest soup, we were told, is favored by middle-aged Chinese ladies to prevent wrinkles. Like ginseng, it is thought to generally improve libido and overall health. Whatever its virtues, real or imagined, it is a very popular food item on international markets; white bird's nests can bring as much as$4000 per kilogram.

Collecting bird nests in Gomantong Cave is a highly dangerous but lucrative activity, and is definitely off the scale of dirtiest jobs. We followed a narrow boardwalk laid down on top up several meters of soft, smelly guano, staring in amazement at the vaulted ceiling 90 meters high. The bird nest collectors, called "spidermen," use narrow, handmade rope ladders suspended from hooks to access the upper reaches of the ceiling. Just how the original hooks got up there was not at all obvious. The bird nests are small cups glued directly onto the rock; they must be cut off with a knife on a long bamboo pole, and caught by waiting workers below. The nests are harvested twice a year; the first time before eggs can be laid, and the second time after the swiftlets have rebuilt a new nest and fledged their chicks.

The cave has its own finely tuned ecosystem. A million swiftlets fly out of the cave in daylight hours to forage for insects in the surrounding forest, and approximately two million bats of 27 species fly out at night for similar purposes. The digested insects are deposited as nitrogen-rich guano, which feeds an army of millions of dung-beetles and cockroaches. The cockroaches are not our standard black model, but are orange with black bands and actually quite handsome, as cockroaches go.

A visit to Borneo is not complete without some leech encounters. Borneo leeches are terrestrial, not aquatic like Alaska fresh-water leeches. They typically hang out on the bushes awaiting a passing meal, such as myself. There are several species, including the striped tiger leech which is several inches long, depending on how far you stretch it out. These leeches can move rather quickly, using an end-over-end loop-

ing movement with their suction cups on both ends. They are heat seeking, and supposedly will looptyloop over to you, if you stand in one place too long. In the forest I always wore two pair of fine-mesh women's nylon hose, with my long pants tucked into the outer hose. This was fine for the legs, but several leeches did get in through my shirt openings. Fortunately, they detach fairly easily and don't usually carry diseases. The bites don't hurt because they anesthetize the wound, but the blood will continue to ooze because they inject an anticoagulant. One can complain about the aesthetics of Borneo leeches, but personally I would take them any day over the lyme-disease carrying ticks of the eastern U.S., which can be hard to find and harder yet to completely remove.

The toughest part of our trip was a two-day climb up Mt Kinabalu, the highest point in Borneo (and Malaysia) at 13,435 feet. The vegetation is stratified in several distinct zones on the mountain, and botanists from all over the world have studied the unique plants, many of which are endemics found only on Mt Kinabalu. There were for example 12 species of carnivorous pitcher plants, three endemic to Mt Kinabalu. Pitcher plants have a bulb-shaped pitcher filled with a sticky fluid of sweet-smelling, digestive enzymes. Insects and small animals are attracted into the pitcher, fall into the fluid and are digested for their nitrogen compounds. Pitcher plants thrive on nutrient-poor soils (serpentine, in this case), because they don't depend on normal soil-based nitrogen. In most species a small lid hovers above the mouth of the pitcher to keep out rainwater, which would dilute the digestive fluid. Our guide told us that he put a dead frog into a pitcher and it took a week to digest. The largest pitchers can hold up to 3.5 liters of fluid, but most would hold only several ounces.

The worldwide distribution of pitcher plants is quite spotty. I have seen them in Georgia and in Venezuela, and nowhere in between. In the New World pitcher plants, an entire leaf has been modified to make the pitcher; in the Old World pitcher plants of Southeast Asia a tendril running off the end of a normal leaf has been modified to form the pitcher (see photo).

Mt Kinabalu is a treasure trove of orchids, with more than 1000 species, as well as shrubs like rhododendrons (29 species, 9 endemic), and trees like oaks, chestnuts and podocarps, and two species of the world's largest flower Rafflesia, whose 5-petaled flowers measure 12 inches across. Rafflesias are parasitic plants on the roots and stems of vines; they attract insect pollinators with an odor of rotting flesh that gives them the local name of "corpse flowers."

The climb up Mt Kinabalu was not for the faint of heart or weak knees. We started from our guest house at 7000 feet, and climbed up a steep rocky trail to a hostel at 11,000 feet, where we recouped, had a good meal and a short night's rest. At 3 am we arose and started up the trail by headlamp in order to get to the summit by dawn. The trail was crowded with more than 100 other pilgrims, each taking one step at a time to conserve their ever-shrinking breadth. A one-inch rope was strung over this part of the trail, which provided a useful handhold for pulling ourselves up the steeper parts, as well as ensuring that we didn't veer off the trail into a dark abyss. Rickety wooden steps, widely-spaced, and handrails helped us over some of the steepest, most eroded parts of the trail. When dawn began to provide more light, I could see that we had climbed up onto a bare granite plateau, scraped clean by glaciers during the last ice age. The final summit (Low's peak) was another few hundred meters above the plateau. The air was pretty thin at this point and my stomach was not feeling too good, experiencing the first stages of altitude sickness. Nevertheless, we plodded on, one step at a time, summoned by twinkling headlamps of hardier souls who had already reached the summit. The view of sunrise from the top of the world was indeed spectacular, and I was glad that I had continued to put one foot in front of the other to make it to the top. We could see the South China Sea to the northwest, and our highway route from Kota Kinabalu, the capital of the Malaysian state of Sabah on the coast. Low's Gully dropped off 1800 meters on the north side, not a good place to drop your wallet.

The ascent of Mt Kinabalu was one of our last adventures on this trip, and within a few days we were on the plane returning to Anchorage, wondering if Mt Redoubt would hold off long enough for us to land. Borneo is a spectacular place to visit. As my professors told me years ago, you should see the tropical rainforests of the world while they are still there to be seen. Borneo is developing rapidly with logging and palm oil plantations, but much of it is still a sparkling jewel box full of the diversity of life.

Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. He accompanied Alaska Pacific University Professor Roman Dial and his tropical ecology students to Borneo for a month in January.

Ed will be teaching his 5-week Global Climate Change course at the Kenai Peninsula College starting March 24 in Soldotna and March 26 in Homer. Previous Refuge Notebook columns can be viewed on the Web at http://www.fws.gov/refuge/kenai/.